

What Is Claimed Is:

1. A method of interleaving a source data stream for transmission comprising the steps of:

encoding said source data stream to generate an output data stream using a convolutional coding scheme having a selected code rate, said output data stream being characterized as a series of data groups, each of said data groups comprising a plurality of punctured data groups, each of said punctured data groups having a reduced code rate with respect to said selected code rate;

interleaving said data groups in accordance with a plurality of time-interleaving functions to disperse said bits in said data groups within said output data stream and generate an interleaved data stream; and

transmitting said interleaved data stream on at least one transmission channel, said time-interleaving functions being selected to disperse different groups of bits in said output data stream selected from the group consisting of said bits in one of said punctured data groups, said bits in adjacent said data groups, and said bits in selected sets of said data groups to facilitate reconstruction of said source data stream from at least a portion of said interleaved data stream received via said at least one transmission channel.

2. A method as claimed in claim 1, wherein said time-interleaving functions are selected to facilitate reconstruction of said source data stream from at least a portion of said interleaved data stream following a continuous blockage of said at least one transmission channel.

3. A method as claimed in claim 1, wherein each of said punctured data groups comprises subsets of said bits in said data groups, said subsets of bits being selected such that only a minimum number of said subsets are required to reconstruct said source data stream from said at least one transmission channel.

4. A method as claimed in claim 1, wherein said at least one transmission channel is transmitted via one of a satellite and a terrestrial transmitter.

5. A method as claimed in claim 1, further comprising the step of decoding said interleaved data stream using said selected code rate.

6. A method as claimed in claim 5, wherein said decoding is performed using convolutional decoding.

7. A method as claimed in claim 6, wherein said convolutional decoding is performed using a Viterbi decoder.

8. A method as claimed in claim 7, wherein said time-interleaving functions are selected to optimize error correction during said Viterbi decoding.

9. A method as claimed in claim 1, wherein said time-interleaving functions can vary during transmission of interleaved data stream.

10. A method of deinterleaving an interleaved data stream transmitted on a transmission channel comprising the steps of:

receiving said interleaved data stream;

synchronizing said interleaved data stream;

decoding said interleaved data stream to generate a decoded data stream using convolutional decoding, said interleaved data stream comprising bits from a source data stream having been encoded via convolutional encoding to generate a plurality of data groups, each of the data groups having a plurality of punctured data groups, said data groups being interleaved via time-interleaving functions selected to disperse different groups of said bits selected from the group consisting of said bits in one of said punctured data groups, said bits in adjacent said data groups, and said bits in selected sets of said data groups to facilitate reconstruction of said source data stream from at least a portion of said interleaved data stream received via said transmission channel, said convolutional decoding reconstructing said source data stream using said interleaved data stream and selected sequences of bits relating to said convolutional encoding and said time-interleaving functions.

11. An apparatus for interleaving a data stream for transmission comprising:

a convolutional encoder for encoding said data stream to generate an output data stream having a selected code rate, said output data stream being characterized as a series of data groups, each of said data groups comprising a plurality of punctured data

groups, each of said punctured data groups having a reduced code rate with respect to said selected code rate;

an interleaver for interleaving said data groups in accordance with a plurality of time-interleaving functions to disperse said bits in said data groups within said output data stream and generate an interleaved data stream; and

a transmitter for transmitting said interleaved data stream on a transmission channel, said time-interleaving functions being selected to disperse different groups of bits in said output data stream selected from the group consisting of said bits in one of said punctured data groups, said bits in adjacent said data groups, and said bits in selected sets of said data groups to facilitate reconstruction of said source data stream from at least a portion of said interleaved data stream received via said transmission channel.

12. An apparatus as claimed in claim 11, wherein said time-interleaving functions are selected to facilitate reconstruction of said source data stream from at least a portion of said interleaved data stream received on said transmission channel following a continuous blockage of said transmission channel.

13. An apparatus as claimed in claim 11, wherein said transmitter is provided on one of a satellite and a terrestrial transmitter.

14. An apparatus as claimed in claim 11, wherein said time-interleaving functions can vary during transmission of interleaved data stream.